The Toxics in Products by Accident Interagency Work Group identified several topics that are pertinent to this part of the Green Chemistry Initiative. We welcome your comments and insights to any or all of the circumstances and questions posted below.

1) Research on mechanisms of toxicity is rapidly growing. Not only does "the dose make the poison" but recent findings suggest toxicity can be mediated through receptor systems (e.g., endocrine disruptors), epigenetic regulation of gene transcription and translation, migration of neural cells during fetal brain development, and cell-to-cell communication during organogenesis. These mechanisms are not dose dependent or related to the inherent potency of the toxin. Rather, some depend upon the timing of exposure during the individual's life cycle.
   a. How can these new findings be incorporated into a chemicals policy?
   b. How can a chemicals policy incorporate new scientific discoveries more quickly?

2) Some chemicals have been associated with adverse effects other than human toxicity. Chlorofluorocarbons have been connected to damaging the ozone layer. Other chemicals are associated with toxicity to other animals and plants (i.e., ecotoxicity). Still other chemicals, green house gases, are associated with global climate change.
   a. How should a chemicals policy incorporate concerns about adverse effects of chemicals beyond human toxicity?

3) Some chemicals that are toxic to humans may reach humans through a complicated pathway. Mercury may reach humans through consuming contaminated fish. Plastics in the ocean may have other chemicals adhere to their surface and be ingested by fish, which in turn are consumed by people.
   a. What provisions should be included in a chemicals policy to reduce risks of harm through complex pathways?

4) New technologies like biotechnology and nanotechnology will be introduced with greater frequency. The impacts on human, ecological, or planetary health can not be known immediately.
   a. How can a chemicals policy address the mismatch between the speed of new technology development and lagging health impact research?

5) Green chemistry proponents design new processes and reformulate products to reduce or eliminate the use or releases of hazardous chemicals in several phases, including: 1) when companies manufacture the product; 2) when consumers use the products; and 3) when the products (and packaging) are disposed (or recycled). All three phases will likely involve various types of

workers coming into contact with chemical ingredients, products, and related work processes (i.e., in manufacturing products, using them, or disposing/recycling them). Therefore, the Green Chemistry efforts should consistently keep in mind worker health and safety issues in all phases and ensure that, in reducing consumer or environmental risks, the risks to any involved workers are not increased. This will likely require increased communication and collaboration between product and process designers, consumer and environmental health advocates, public health and environmental protection agencies, and professionals/practitioners in occupational safety and health.

a. What examples exist for successful Green Chemistry efforts that specifically consider impacts of product design and processes on workers, communities/consumers, and the environment?
b. Are there any specific recommendations for increasing collaboration and communication between those entities focused on worker health and safety, community/consumer/public health, and environmental protection in order to achieve the above goal?

6) Certain populations may consume locally caught fish, potentially exposing them to higher levels of toxic chemicals.
   a. What are some options, beyond fish advisories, for addressing this issue?

7) Imported products, such as toys, toothpaste, foods, etc., have been found to contain unwanted chemicals.
   a. What are some options for controlling toxics in imports?

8) Toxics are present by accident in breast milk, the major “consumer product” of infants.
   a. What are some options for addressing this public health concern?

9) Plastic containers that carried toxic chemicals are often recycled. Traces of the chemicals are not fully broken down during the recycling process. The recycled plastic may be used to manufacture consumer items such as toys, potentially exposing people (especially children) to traces of toxic chemicals.
   a. What are some policies for altering this exposure pathway?